

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) An ~~animal~~ model system for artificially inducing a heart arrhythmia, comprising:

~~an canine~~ a non-human test subject having an artificially induced atrioventricular block in the heart of the ~~canine~~ non-human test subject, the anterior descending portion of the coronary artery of the heart of the ~~canine~~ non-human test subject being surgically or chemically blocked, or both, for inducing a myocardial infarction; said ~~canine~~ non-human test subject having, coupled to a myocardial nerve conduction pathway leading to the left ventricle of the heart, means for stimulating myocardial hyperinnervation in the left ventricle and thereby inducing a heart arrhythmia; said ~~canine~~ non-human test subject further having, coupled to its heart via electrical leads, means for detecting electrical heart signals representative of the induced heart arrhythmia.

2. (Currently amended) The ~~animal~~ model system of claim 1, wherein the means for stimulating myocardial hyperinnervation in the left ventricle comprises an osmotic pump for pumping ~~a neurotrophic factor~~ NGF into the myocardial nerve conduction pathway leading to the left ventricle.

3. (Currently amended) The ~~animal~~ model system of claim 1, wherein the means for stimulating myocardial hyperinnervation in the left ventricle comprises an electrical lead for administering an electrical current to the myocardial nerve conduction pathway leading to the left ventricle.

4. (Currently amended) The ~~animal~~ model system of claim 1, wherein the means for detecting heart signals representative of the induced heart arrhythmia further comprises means for pacing the heart in response to the induced heart arrhythmia.
5. (Currently amended) The ~~animal~~ model system of claim 4, wherein the means for detecting electrical heart signals representative of the induced heart arrhythmia comprises an implantable cardioverter-defibrillator (ICD)..
6. (Currently amended) The ~~animal~~ model system of claim 5, wherein the cardioverter-defibrillator (ICD) further applies ~~techniques~~ therapies to prevent the occurrence of further arrhythmias of the heart of the ~~canine~~ non-human test subject.
7. (Currently amended) The ~~animal~~ model system of claim 5, wherein the cardioverter-defibrillator (ICD) applies ~~techniques~~ therapies to prevent the occurrence of ventricular fibrillation of the heart of the ~~canine~~ non-human test subject.
8. (Currently amended) The ~~animal~~ model system of claim 5, further comprising a telemetry system for downloading signals and any response applied by the ICD; and a test analysis system for processing the signals received from the ICD to verify the efficacy of any response applied by the ICD to the heart of the ~~canine~~ non-human test subject.
9. (Currently amended) The ~~animal~~ model system of claim 1, wherein the anterior descending portion of the coronary artery of the heart of the ~~canine~~ non-human test subject is surgically blocked by a ligation of the coronary artery or by wires positioned in the artery through a catheter.
10. (Cancelled)
11. (Currently amended) The ~~animal~~ model system of claim 1, wherein the means for stimulating myocardial hyperinnervation in the left ventricle comprises an osmotic pump for

pumping nerve growth factor (NGF) into the myocardial nerve conduction pathway leading to the left ventricle.

12. (Currently amended) An ~~animal~~ model system for artificially inducing a heart arrhythmia, comprising:

~~an canine~~ a non-human test subject having an artificially induced atrioventricular block in the heart of the ~~canine~~ non-human test subject, the anterior descending portion of the coronary artery of the heart of the ~~canine~~ non-human test subject being surgically or chemically blocked, or both, for inducing a myocardial infarction; said ~~canine~~ non-human test subject having, coupled to a myocardial nerve induction pathway leading to the left ventricle of the heart, a nerve growth factor (NGF)-infusing means for stimulating myocardial hyperinnervation in the left ventricle and thereby inducing a heart arrhythmia; said ~~canine~~ non-human test subject further having, coupled to its heart via electrical leads, a cardioverter-defibrillator (ICD) for detecting electrical heart signals representative of the induced heart arrhythmia and for pacing the heart in response to the induced heart arrhythmia.

13. (Currently amended) The ~~animal~~ model system of claim 12, wherein the ICD further applies ~~techniques~~ therapies to prevent the occurrence of further arrhythmias of the heart of the ~~canine~~ non-human test subject.

14. (Currently amended) The ~~animal~~ model system of claim 12, wherein the ICD applies ~~techniques~~ therapies to prevent the occurrence of ventricular fibrillation of the heart of the ~~canine~~ non-human test subject.

15. (Currently amended) The ~~animal~~ model system of claim 12, further comprising a telemetry system for downloading signals from the ICD representative of detected heart signals and any response applied by the ICD; and a test analysis system for processing the signals received from

the ICD to verify the efficacy of any response applied by the ICD to the heart of the ~~canine~~ non-human test subject.

16. (Currently amended) The ~~animal~~ model system of Claim 12, wherein the anterior descending portion of the coronary artery of the heart of the ~~canine~~ non-human test subject is surgically blocked by a ligation of the coronary artery or by wires positioned in the artery through a catheter.

17. (Currently amended) ~~An animal~~ A non-human model system for artificially inducing a heart arrhythmia, comprising:

~~an canine~~ a non-human test subject having an artificially induced atrioventricular block in the heart of the ~~canine~~ non-human test subject, the anterior descending portion of the coronary artery of the heart of the ~~canine~~ non-human test subject being surgically or chemically blocked, or both, for inducing a myocardial infarction; said ~~canine~~ non-human test subject having, coupled to a myocardial nerve conduction pathway leading to the left ventricle of the heart, means for stimulating myocardial hyperinnervation in the left ventricle and thereby inducing a heart arrhythmia, wherein the means comprise an electrical lead for administering an electrical current to the myocardial nerve conduction pathway leading to the left ventricle; said ~~canine~~ non-human test subject further having, coupled to its heart via electrical leads, a cardioverter-defibrillator (ICD) for detecting electrical heart signals representative of the induced heart arrhythmia and for pacing the heart in response to the induced heart arrhythmia.

18. (Currently amended) The ~~animal~~ model system of claim 17, wherein the ICD further applies ~~techniques~~ therapies to prevent the occurrence of further arrhythmias of the heart of the ~~canine~~ non-human test subject.

19. (Currently amended) The ~~animal~~ model system of claim 17, wherein the ICD applies ~~techniques~~ therapies to prevent the occurrence of ventricular fibrillation of the heart of the ~~canine~~ non-human test subject.

20. (Currently amended) The ~~animal~~ model system of claim 17, further comprising a telemetry system for downloading signals from the ICD representative of detected heart signals and any response applied by the ICD; and a test analysis system for processing the signals received from the ICD to verify the efficacy of any response applied by the ICD to the heart of the ~~canine~~ non-human test subject.

21. (Currently amended) The ~~animal~~ model system of Claim 17, wherein the anterior descending portion of the coronary artery of the heart of the ~~canine~~ non-human test subject is surgically blocked by a ligation of the coronary artery or by wires positioned in the artery through a catheter.